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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
SMITH, FRANCIS P	
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4151	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/710,895	MOVCHAN ET AL.	
	Examiner	Art Unit	
	Francis P. Smith	4151	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 August 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 August 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, it is unclear what is meant by "sub-grain interfaces" in line 3 of claim 14. Page 16 of the specification, lines 1-20, describes the "formation of many additional interfaces associated with sub-grain boundaries, possibly due to what appears to be related to the presence of carbon promoting the nucleation of new sub-grains and inhibiting diffusion processes of grain growth. The result is a continuous nucleation of new grains, which produces a fine sub-grained TBC structure with numerous interfaces that reduce thermal conductivity through the TBC grains." Thus, the structure or composition of the sub-grain interface is unclear. For examination purposes, the sub-grain interface is interpreted as micro-structural defects.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public

use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 4-11 and 20-25 rejected under 35 U.S.C. 102(e) as being anticipated by Rigney et al. (US 6,492,038B1).

5. The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 1, Rigney teaches a thermal barrier coating (TBC) and a method for forming the coating on a component intended for use in a hostile environment. Specifically, the process for forming the TBC entails depositing a suitable TBC material in the presence of a carbon or nitrogen containing gas (i.e. forming the thermal barrier coating of a thermal-insulating material in which is contained elemental carbon and/or a gas that is insoluble in the thermal-insulating material) (col. 5, lines 23-30). The high-temperature evaporation of the TBC material in the presence of the carbon and/or nitrogen-containing gas(es) results in the simultaneous formation of the precipitates (i.e. elemental carbon and/or a gas) at the defects and pores within the grains and at

and between the grain boundaries of the TBC microstructure (i.e. elemental carbon and/or insoluble gas being within pores (infiltrating) that are within grains and at and between grain boundaries of the thermal insulating material) (col. 4, lines 51-57; col. 5, lines 45-50). To be effective, it is believed that the TBC must contain at least three volume percent of the precipitates, whereby the proportions of the precipitates can be controlled through adjusting the partial pressure of the carbon and/or nitrogen containing gas(es) (i.e. the elemental carbon and/or insoluble gas being present in an amount sufficient to thermally stabilize the microstructure of the thermal insulating material) (col. 5, lines 6-9 and 50-53).

For claims 2 and 11, Rigney teaches high-temperature evaporation of the TBC material in the presence of the carbon and/or nitrogen-containing gas(es) whereby the TBC ingot could be altered to contain carbon, a carbon-containing compound, or a carbide, or a nitride (i.e. co-evaporating carbon and a thermal-insulating material at an elevated temperature) (col. 5, lines 45-50 and 55-58).

Regarding claims 4, 21, and 24, Rigney discloses depositing a thermal barrier coating (col. 4, lines 51-55). The high-temperature evaporation of the TBC material is conducted in the presence of the carbon and/or nitrogen containing gas (i.e. infiltrating the thermal barrier layer coaiting with the insoluble gas) (col. 5, lines 45-50). In addition, the TBC coated substrate may be heat treated in the presence of a carbon or nitrogen containing gas at a temperature of 900-1100°C (i.e. heating the thermal barrier coating, which would inherently close at least some of the pores while trapping insoluble gas within the closed pores) (col. 6, lines 4-11).

As per claims 5 and 22, Rigney discloses the use of nitrogen gas, which is an insoluble gas (col. 5, lines 27-30).

Addressing claim 6-8, Rigney teaches stabilization of the TBC microstructure by forming fine precipitates (i.e. carbon or nitrogen insoluble gas) that anchor and pin the grain boundaries and pores of the TBC, thus preventing grain growth and pore redistribution from sintering/high temperature usage (i.e. at least some of the pores entrap the insoluble gases) (col. 4, lines 57-65). Additionally, the TBC-coated substrate is subject to a heat treatment in the presence of a carbon and/or nitrogen containing gas. Decomposition of preferred precipitates advantageously leave pores when subject to high temperatures (i.e. heating the thermal barrier coating to a temperature sufficient to evolve the carbon-containing gas from the elemental carbon and partially sintering the TBC that would inherently trap the carbon containing gas as per claim 7). The heat treatment is conducted at a temperature of 900-1100°C (claim 8) (col. 4, lines 55-67; col. 5, lines 1-5; col. 6, lines 4-20).

As for claim 9, Rigney teaches a TBC containing columnar grains (col. 4, lines 36-37).

Regarding claim 10, Rigney discloses that a preferred insulating material is yttria-stabilized zirconia (col. 4, lines 25-30).

For claims 20 and 25, Rigney teaches a TBC containing columnar grains and a preferred insulating material is yttria-stabilized zirconia (col. 4, lines 25-30 and 36-37).

For claim 23, Rigney teaches depositing the TBC using a physical vapor deposition technique such as electron beam physical vapor deposition (col. 4, lines 23-

26).

6. Claim 1,2,4-11,21-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Alperine et al. (US 6,312,832 B1).

Regarding claims 1,4,5,11,21,22, and 24, Alperine teaches process for depositing (i.e. forming) a thermal barrier coating whereby an insoluble gas (e.g. CO or CO_2) is trapped in the crystalline network of the ceramic and in the micro-pores of its structure (i.e. infiltrating the thermal barrier coating as per claim 21), thereby contributing to reducing thermal conductivity (col. 4, lines 6-20). Additionally, carbon is introduced in small quantities from 0.01-1.0 weight percent to reduce the thermal conductivity of the coating (i.e. present in an amount sufficient to thermally stabilize the microstructure of the thermal insulating material) (col. 4, lines 6-20). The coatings undergo a high temperature aging process at a temperature of 1100°C (claim 24) that would inherently close some of the pores, entrapping the CO or CO_2 (i.e. insoluble gas) as per claims 4-6 (i.e. partially sintering to close some of the pores/heating at a temperature of at least 950°C as per claims 7,8) (col. 5, lines 44-51).

As per claims 2 and 11, Alperine teaches the co-evaporation of carbon and a thermal-insulating material by EBPVD (i.e. at an elevated temperature) that thermally stabilizes pores (col. 4, lines 15-20 and 42-68; col. 6, lines 11-38).

For claims 9,10, and 25, Alperine discloses a thermal barrier coating comprising columnar grains (col. 5, lines 15-18). Furthermore, the thermal-insulating material is composed of yttrium and zirconia (i.e. yttria-stablilzed zirconia) (col. 3, lines 3-10; see

example 2, col. 6).

As per claim 23, Alperine teaches depositing by electron beam physical vapor deposition (col. 4, lines 35-40).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

10. Claims 3, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rigney et al. (US 6,492,038B1) in view of Wortman (US 5,942,334).

The applied reference (US 6,492,038B1) has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

For claims 3,12, and 13, Rigney teaches depositing the thermal barrier coating by electron beam physical vapor deposition during which an ingot of the thermal insulating material undergoes high-temperature evaporation in the presence of a carbon and/or nitrogen containing gas resulting in the simultaneous formation of precipitates at

the defects and pores. Furthermore, the TBC ingot material may be altered to contain carbon (e.g. graphite as per claim 13), a carbon-containing compound, or a carbide or nitride (i.e. simultaneous evaporation of the thermal insulating material and the carbon containing material) (col. 5, lines 45-60). Rigney, however, does not teach the use of a second ingot.

Wortman teaches a method for forming a multilayer thermal barrier coating whereby the apparatus is configured to house two or more ingots of the material to be deposited (col. 5, lines 29-33). Therefore, it would have been obvious to one skilled in the art at the time of the invention to utilize more that one ingot (i.e. duplication of Rigney's carbon (e.g. graphite) containing ingot) in order to supply a greater amount of one or more coating materials to permit thicker coatings and/or more deposition trials. Furthermore, a mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co. , 193 USPQ 8.*

11. Claims 14-19 are rejected under 35 U.S.C. 103(a) as being obvious over Rigney et al. (US 6,492,038B1) and further in view of Maloney (US 6,299,971 B1).

The applied reference (US 6,492,038B1) has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed

subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Addressing claim 14, Rigney teaches that the volume fraction of the precipitates within the TBC is about 3-25 volume percent (col. 5, lines 6-22), but does not expressly disclose an open porosity of at least 25 volume percent.

Maloney teaches methods for producing layered ceramic coatings in which some layers contain porosity. Specifically, the porous layer will contain substantially more than about 20% porosity by volume after a heat treatment (col. 4, lines 30-32). Therefore, it would have been obvious to one skilled in the art at the time of the invention for Rigney's TBC to contain an open porosity of at least 25 volume percent by incorporating Maloney's heat treatment in order to enhance the mechanical properties of the coating by densifying the ceramic in the regions between the pores.

Addressing claim 15-19, Rigney teaches stabilization of the TBC microstructure by forming fine precipitates (i.e. carbon or nitrogen insoluble gas) that anchor and pin the grain boundaries and pores of the TBC, thus preventing grain growth and pore redistribution from sintering/high temperature usage (i.e. at least some of the pores

entrap the insoluble gases) (col. 4, lines 57-65). Additionally, the TBC-coated substrate is subject to a heat treatment in the presence of a carbon and/or nitrogen containing gas. Decomposition of preferred precipitates advantageously leave pores when subject to high temperatures (i.e. heating the thermal barrier coating to a temperature sufficient to evolve the carbon-containing gas from the elemental carbon and partially sintering the TBC that would inherently trap the carbon containing gas as per claim 18). The heat treatment is conducted at a temperature of 900-1100°C (claims 17 and 19) (col. 4, lines 55-67; col. 5, lines 1-5; col. 6, lines 4-20).

12. Claims 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alperine et al. (US 6,312,832) in view of Maloney (US 6,299,971 B1).

For claims 14 and 15, Alperine teaches a process for depositing (i.e. forming) a thermal barrier coating whereby an insoluble gas (e.g. CO or CO_2) is trapped in the crystalline network of the ceramic and in the micro-pores of its structure, which is analogous to some of the pores containing a carbon containing gas in an amount sufficient to thermally stabilize the microstructure of the thermal-insulating material, and would also make said pores resistant to sintering, grain coarsening, and pore redistribution (col. 4, lines 6-20). Alperine does not disclose establishing an open porosity within the thermal barrier coating of at least 25 volume percent of the thermal barrier coating.

Maloney teaches methods for producing layered ceramic coatings in which some layers contain porosity. Specifically, the porous layer will contain substantially more

than about 20% porosity by volume after a heat treatment (col. 4, lines 30-32). Therefore, it would have been obvious to one skilled in the art at the time of the invention for Alperine's low thermal conductivity heat barrier coating to contain an open porosity of at least 25 volume percent by incorporating Maloney's heat treatment in order to enhance the mechanical properties of the coating by densifying the ceramic in the regions between the pores.

For claims 16-19, Alperine teaches a thermal barrier coating whereby an insoluble gas (e.g. CO or CO_2) is trapped in the crystalline network of the ceramic and in the micro-pores of its structure (col. 4, lines 6-20). Also, a high temperature annealing of the coatings is conducted at a temperature about 1100°C, which is analogous heating the thermal barrier coating to a temperature sufficient to evolve the carbon-containing gas from the elemental carbon, partially sintering the thermal-insulating material to close at least some of the pores, and entrapping carbon the carbon containing gas in additionally formed pores (col. 5, lines 44-62).

Regarding claim 20, Alperine discloses a thermal barrier coating comprising columnar grains (col. 5, lines 15-18). Furthermore, the thermal-insulating material is composed of yttrium and zirconia (i.e. yttria-stablilzed zirconia) (col. 3, lines 3-10; see example 2, col. 6).

13. Claims 3 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alperine (US6 6,312,832 B1) in view of Strangman et al. (US 6,482,537).

Alperine teaches a simultaneous evaporation of the thermal-insulating material

and the carbon-containing material (col. 6, lines 15-29). However, Alperine does not teach the use separate ingots.

Strangman teaches an improved electron beam-physical vapor deposition process that utilizes two separate ingots. The two ingots are spaced apart and separated by a baffle. The ingots are bombarded with a stream of electrons (i.e. simultaneously evaporated) while the component is then alternatingly exposed to vapor deposition from the two vapor streams by the rotation of the surfaces to be coated (col. 2, lines 25-34).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Alperine's method by supplying the thermal-insulating material and carbon-containing material in separate ingots as taught by Strangman in order to create distinguished layers of ceramic material whereby each individual ceramic layer containing nitride may be partially carburized to enhance the integrity of the thermal barrier coat.

14. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Alperine (US6 6,312,832 B1) in view of Strangman et al. (US 6,482,537), as applied to claim 12 above, and further in view of Turpin et al. (US 6,238,594 B1).

Alperine as modified by Strangman does not teach using graphite.

Turpin teaches the use and method of making an intumescent material that contains expandable graphite for use in coatings or films. Specifically, the expandable particulate graphite expands from about 20-200 times its unexpanded volume to fill

voids and cavities (col. 2, lines 35-52). Therefore, it would have been obvious to one skilled in the art at the time of the invention to include Turpin's expandable graphite in Alperine/Strangman's second ingot in order to effectively fill the pores/voids of the thermal barrier coat and to reduce the corrosion of aluminum found in TBCs.

Double Patenting

15. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-25 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-17 of U.S. Patent No. U.S. 7,08,266. Although the conflicting claims are not identical, they are not patentably distinct from each other because US'266 teaches similar method of the instant application, but further includes a third oxide to form the thermal barrier coating. Although applicant

further specifies certain structural features (i.e. grains/pores), the thermal barrier coating of '266 would also inherently posses these features.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Francis P. Smith whose telephone number is (571) 270-3717. The examiner can normally be reached on Monday through Friday 7:30 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mikhail Kornakov can be reached on (571)272-1303. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

FPS

/Michael Kornakov/
Supervisory Patent Examiner, Art Unit 4151